

[0082] The master transceiver 12 also periodically verifies each slave transceiver device that is "online" or "engaged" according to the master table to ascertain whether any failures have occurred at the slave device using a "time-out" based scheme. According to this time-out scheme, the master transceiver 12 periodically transmits a POLL packet in command slot 62 to a specific "online" slave device 14<sub>n</sub> from the master table to ascertain the state of the slave device 14<sub>n</sub>. In the preferred embodiment, the master transceiver 12 transmits a POLL signal every ten seconds. Responsive to this POLL packet, slave device 14<sub>n</sub> transmits an acknowledgement signal in the command slot 62 of the next immediate frame identifying itself as slave device 14<sub>n</sub> and acknowledging its state. Responsive to this acknowledgement signal, the master transceiver 12 confirms verification of device 14<sub>n</sub> and continues with other tasks. In the event slave device 14<sub>n</sub> is shutdown or otherwise unavailable, master transceiver 12 will not receive a return acknowledgement and master transceiver 12 will fail to verify device 14<sub>n</sub>. After a predetermined number failed verifications from a slave device, a time-out is triggered, and the master transceiver 12 will change the state of such slave device to "offline".

[0083] In the command slot 62, the flow of protocol messages between the transceivers is preferably governed by a "sequence retransmission request" (SRQ) protocol scheme. The SRQ protocol framework provides confirmation of a protocol transaction after the entire protocol sequence is completed. Effectiveness and success of the transmission of a protocol sequence are acknowledged at the completion of the entire protocol sequence rather than immediately after the transmission of each message as in the traditional Automatic Retransmission reQuest (ARQ) approach. Because a protocol sequence may include a plurality of protocol messages, the overhead associated with acknowledging each protocol message is avoided, and bandwidth use is improved thereby. The SRQ protocol scheme is described further detail in copending patent application entitled "MEDIUM ACCESS CONTROL PROTOCOL FOR CENTRALIZED WIRELESS NETWORK COMMUNICATION MANAGEMENT" having attorney docket number "INT-99-005" filed on Sep. 10, 1999 which is expressly incorporated herein by reference.

[0084] Referring again to FIG. 3 as well as FIG. 1 and FIG. 2, a plurality of data slots 64<sub>a</sub> through 64<sub>n</sub> is provided for each slave transceiver 14<sub>a</sub> through 14<sub>n</sub> of the network 10 which is registered as "online". The master transceiver 12 further manages the transmission of information in slots 64<sub>a</sub> through 64<sub>n</sub> through traditional Time Division Multiple Access (TDMA). The command slot 62 operates in traditional TDMA mode in addition to the "slotted ALOHA" mode described above for inviting protocol messages from the slave transceivers as determined by the master transceiver 12. The slotted ALOHA mode, which is active when the master invites a protocol message, continues until the slave protocol message is received without collision. Once the slave protocol messages is received or "captured" by the master transceiver, the command slot operates in a regular TDMA mode until the entire protocol exchange sequence between the master device and the "captured" slave device is completed. Traditional TDMA mode is used, for example, when a first slave transceiver makes a data link request to the master transceiver in order to communicate data to a second slave transceiver.

[0085] For example, a first slave transceiver 14<sub>a</sub> (microphone) has audio data to transmit to a second slave transceiver 14<sub>b</sub> (speaker). The master transceiver 12 manages this data transaction in the manner and sequence described herein. As indicated above, the master transceiver periodically sends an ALOHA broadcast to invite protocol messages from the slave devices of the network. Responsive to this ALOHA broadcast, slave transceiver 14<sub>a</sub> transmits a data-link request (REQ) to master transceiver 12 identifying itself as the originating transceiver and identifying the target slave transceiver 14<sub>b</sub>. Responsive to this REQ request, the master transceiver 12 verifies the states of originating or source transceiver 14<sub>a</sub> and target transceiver 14<sub>a</sub> according to the master table. If both originating transceiver and target transceiver are "online" according to the master table, the master transceiver transmits a base acknowledge (BACK) to the originating transceiver 14<sub>a</sub> and a service request (SREQ) to the target transceiver indicating the identity of the originating transceiver 14<sub>a</sub> and assigns a data slot to the originating transceiver 14<sub>a</sub> within the TDMA frame 58 for data communication. If target transceiver is "offline", the master transceiver 12 transmits a base negative acknowledge (BNACK) packet to the originating transceiver to confirm the unavailability of the target transceiver. If the target transceiver is "engaged" in communication with another device, the master transceiver 12 transmits a base busy (BBUSY) packet to the originating transceiver to indicate the unavailability of the target transceiver.

[0086] When the originating transceiver 14<sub>a</sub> receives the BACK packet, the transceiver 14<sub>a</sub> waits for a data-link confirmation from the master transceiver 12, after which the transceiver 14<sub>a</sub> begins transmitting data within a dynamically assigned data slot. Responsive to the SREQ packet from the master transceiver 12, the target transceiver 14<sub>b</sub> transmits a return acknowledge (ACK) to the master transceiver 12 indicating that transceiver 14<sub>b</sub> is ready to receive data. The transceiver 14<sub>b</sub> also begins to monitor the corresponding data slot assigned to the originating transceiver 14<sub>a</sub>. Responsive to the return ACK from target transceiver 14<sub>b</sub>, the master transceiver 12 transmits a data-link confirmation to originating transceiver 14<sub>a</sub> to indicate that target transceiver is ready to receive data communication.

[0087] After originating transceiver 14<sub>a</sub> completes its data transmission to the target transceiver 14<sub>b</sub>, the transceiver 14<sub>a</sub> terminates its data link by initiating a termination sequence. As indicated above, the master transceiver 12 will periodically transmit an ALOHA broadcast to find unregistered device nodes or to invite protocol requests from registered device nodes.

[0088] The termination sequence comprises communicating a terminate (TERM) process by the originating transceiver 14<sub>a</sub> to the master transceiver 12 in response to an ALOHA message from the master transceiver 12. In transmitting the TERM message, the originating transceiver may also identify the originating device 14<sub>a</sub> and the target device 14<sub>b</sub>. Responsive to this TERM message, the master transceiver 12 carries out the operation of checking the states of the originating transceiver 14<sub>a</sub> and the target transceiver 14<sub>b</sub>, and transmitting to transceiver 14<sub>b</sub> a Service Termination (STERM) command.

[0089] The master transceiver verifies the state of the originating device and the target device to confirm that both